Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, DC 20554

In the Matter of

Wireless Broadband Access Task Force	**)**	
Seeks Public Comment on Issues	**)**	**GN Docket No. 04-163**
Related to Commission's Wireless	**)**	
Broadband Policies	**)**	

To: The Commission

COMMENTS of Nickolaus E. Leggett
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The following is a set of comments from Nickolaus E. Leggett, an amateur radio operator (Extra Class licensee – call sign N3NL), inventor (U.S. Patents # 3,280,929 and 3,280,930 and one electronics invention patent application pending), and a certified electronics technician. I also have a Master of Arts degree in Political Science from the Johns Hopkins University (May 1970).

My comments are in response to the Commission's question: "Does the Commission currently provide sufficient spectrum suitable for wireless broadband networks?"

Too Much Enthusiasm for Wireless Communications?

The Commission is in danger of becoming overly enthusiastic about wireless communications and its future prospects. This Task Force should dedicate itself to conducting an objective and even-handed survey of wireless broadband technologies and their uses in the economy. At the same time, the Task Force should consider the opportunity costs of widespread use of wireless technologies displacing other uses of the

radio spectrum. The Task Force must strive to avoid being a "cheerleader" for this technology at the expense of objective analysis of wireless broadband.

Disadvantages of Wireless

Most of the commentary about wireless service is rather uncritical enthusiasm that threatens to make wireless into a fad. We should stop and think about the significant disadvantages of wireless:

- Security/hacking – wireless systems are significantly more vulnerable to security breaches and hacking attacks. Some of this vulnerability is due to the users' lack of attention to security and to weaknesses in the security protocols. However, much of the vulnerability is due to the fact that the network is operating through free space and unwanted parties can connect to it. There is an activity known as "war driving" where mobile hackers access wireless networks.
- Interference – wireless systems are especially vulnerable to radio frequency (RF) interference from licensed transmitters as well as incidental RF sources.
- Physical damage – wireless systems are vulnerable to physical damage from high power microwave (HPM) and/or electromagnetic pulse (EMP) attacks. Such attacks could easily disable very large numbers of wireless devices. In this regard, it is interesting to note that the terrorists are reportedly recruiting graduate electronics engineers.

Alternatives to Wireless Broadband Technologies

There are alternatives to wireless technologies. One of these is fiber optic networking all the way to each user's desktop. This service would provide a huge bandwidth to each user that overcomes the disadvantages of wireless listed above. It is

likely that fiber optics to the desktop will be the ultimately dominant technology that provides most of the World's communications. As this technology expands in coverage, the competing wireless services will fall by the wayside.

In examining fiber optics to the desktop, it should be remembered that the World is becoming increasingly urban. This means that more and more locations on Earth will become accessible for persons logging into fiber optic networks in offices, hotels, transportation hubs, and residences. The bulk of the World's future high-bandwidth communications will be transported by fiber optic links. This traffic will include extensive use of full-motion two-way video calls.

Other alternatives to wireless also exist such as broadband over power lines (BPL). Most of the BPL technologies have a clouded future because of their broadband radio noise emissions in the short-wave (high frequency) radio spectrum. However, there are newer BPL technologies such as Corridor Systems microwave BPL (using G-line technology) that could be used for broadband communications presumably without the short-wave pollution.

A Public Mathematical Model of Communications

The above considerations suggest that the Commission may be allocating too much radio spectrum to wireless communication as a whole. Further progress on this question can be accomplished by establishing a public mathematical model of future communications activity with alternative technologies depicted. Interested parties could download this model. They could explore the consequences of alternative assumptions and scenarios in communications. The various spin-off derivatives of the model would illuminate the alternative assumptions and their resultant consequences.

Suggested Actions for the Task Force

The Task Force should work to establish the Commission as a facilitator of analytical thought instead of being a cheerleader for selected "innovative" technologies. This goal would be assisted if the Commission establishes an open public mathematical model of future communications activity and the alternative technologies for supporting that activity.

Respectfully Submitted,

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